

I am named as an inventor on four U.S. patents and four pending U.S. patent applications in the field of liquid material dispensing systems.

I have reviewed and understand the subject matter of Nordson's pending U.S. Patent Application Serial No. 10/761,736 (the '736 Application), including the claims now pending. I have also reviewed the final Office Action dated April 25, 2007, and the Advisory Action dated July 31, 2007. My remarks herein address the issue raised by the Examiner, questioning how the pressure in the recirculation path upstream of the pump 24 (recirculation passageway 34 and supply passageway 30) could be greater than the pressure in the dispensing path downstream of pump 24 (distribution passageway 32). I make the following comments based on my education, knowledge and experience in the field of liquid dispensing systems, and based on my intimate knowledge of the subject matter of the '736 Application.

The '736 Application is directed to methods and apparatus for dispensing liquid material from dispensers having liquid recirculation. The application discloses a modular adhesive applicator having multiple manifold segments that are supplied with adhesive from a common adhesive melter. (See, Application at p. 10, line 23 – p. 11, line 1; p. 11, lines 8-11.) Each manifold segment includes a dedicated gear pump that meters a precise amount of adhesive to a dispensing module for application to a substrate. (See, Application at p. 11, lines 11-20.) A separate pump between the melter and the manifold segments feeds adhesive from the melter to a supply channel connecting the manifold segments. (See, for example, FIG. 2 and col. 6, lines 23-27 of U.S. Patent No. 6, 089,413 which is incorporated by reference into the '736 Application.) The gear pumps in each manifold segment ensure that the desired flow rate of adhesive

is provided to their associated dispensing modules, regardless of the rate of flow of adhesive provided from the melter.

If the amount of adhesive provided to any of the manifold segments is insufficient to meet the flow requirements of its associated dispensing module, a "starved" condition of the gear pump results and the adhesive dispensed from the associated dispensing module is not applied at the desired application rate. To avoid such a starved condition, the pump supplying the manifold segments is operated in an overfeed condition, wherein more than the required volume of adhesive is supplied from the melter to the manifold segments. Typical adhesive applicators may overfeed the gear pumps by a factor of about 1.2 to maintain the accuracy of the dispensed flow rates.

Overfeeding the manifold segments is important in dispensing systems having multiple metering pumps for providing precise flow rates to individual dispensing modules, such as that described above, especially when the modules do not all have the same flow rate requirements. One example of such a dispensing system may be an adhesive dispenser having multiple dispensing modules arranged in a horizontal row. In certain applications, it may be desired to dispense a greater amount of adhesive from modules at the ends of the row than from the modules in the middle of the row, thereby requiring different flow rates to at least some of the dispensing modules.

When the pump supplying adhesive from the melter overfeeds adhesive to the manifold segments, the pressure of the adhesive on the inlet side of the gear pumps (the side receiving adhesive from the supply channel) will be greater than the pressure of the adhesive on the outlet side of the gear pumps (the side facing the passage that

feeds the dispensing module. As discussed above, this situation is typical and is desired for proper operation of the dispensing system.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with knowledge that willful false statements and the like, so made, are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the patent application or any patent issued thereon.

Respectfully submitted,

Date: 10/16/07


Michael W. Harris